

### **AMENDMENTS TO THE CLAIMS**

1. (Original) A denitrification reactor with a culture fixed to an organized plastic-type support, combined with an installation for the nitrification and elimination of the carbon-based pollution, said reactor being supplied with a mixture of the raw effluent to be treated and of the effluent originating from the installation for the nitrification and elimination of the carbon-based pollution, characterized in that it comprises:

- two denitrification compartments (3, 4) provided with an organized plastic-type lining (8), these compartments, arranged in parallel, operating via successive, i.e. alternating, sections or loads, one being in the filling phase (denitrification and self-cleaning-out of the excess biomass) while the other is in the emptying phase (denitrification and drainage of the excess biomass);
- a drainage compartment (6) for receiving the denitrified effluent originating from one or other of said denitrification compartments;
- a system for supplying the mixture of effluents consisting of a rotary arm (11) which alternately supplies, at the surface, each of said compartments; and
- means (19, 21) for ensuring the recirculation of the denitrified effluent from the drainage compartment (6) to the installation (2) for the nitrification and elimination of the carbon-based pollution.

2. (Currently amended) The reactor as claimed in claim 1, ~~characterized in that~~ wherein the installation (2) for the nitrification and elimination of the carbon-based pollution is a bacterial bed or surface irrigation bed.

3. (Currently amended) The reactor as claimed in claim 1, ~~characterized in that~~ wherein the installation (2) of the nitrification and elimination of the carbon-based pollution is a system of aerobic biological filtration in ascending air and water flow.

4. (Currently amended) The reactor as claimed in claim 1, ~~characterized in that wherein~~ the installation (2) for the nitrification and elimination of the carbon-based pollution consists of biological disks to which the biomass is attached, these disks revolving around a horizontal axis and being partly immersed in the effluent to be treated.

5. (Currently amended) The reactor as claimed in ~~any one of the preceding claims,~~ ~~characterized in that claim 1, wherein~~ the lining (8) exhibits a specific surface area of between 50 and 200 m<sup>2</sup>/m<sup>3</sup>, and preferably of 150 m<sup>2</sup>/m<sup>3</sup>.

6. (Currently amended) The reactor as claimed in ~~any one of the preceding claims,~~ ~~characterized in that claim 1, wherein~~ the supply of the raw effluent by means of said rotary arm (11) is carried out using a distribution means (12) receiving the mixture of effluents from a deflector (14) provided under re-uptake means in the floor (13) of the installation (2).

7. (Currently amended) The reactor as claimed in ~~any one of the preceding claims,~~ ~~characterized in that claim 1, wherein~~ the rate of recirculation, to the installation (2), of the effluent treated in said reactor is of the order of 300%.

8. (Currently amended) The reactor as claimed in ~~any one of the preceding claims,~~ ~~characterized in that claim 1, wherein~~ a buffer tank is envisioned in order to smooth out the flow rates and the loads.

9. (Currently amended) The reactor as claimed in ~~any one of the preceding claims,~~ ~~characterized in that claim 1, wherein~~ it is integrated into an effluent treatment installation comprising a step of biological treatment, in particular on a bacterial bed,

and a step of elimination of the suspended solids and of treatment of the sludge by filtration-composting on beds planted with reeds, the effluent denitrified in said reactor (1) being recirculated in the bacterial bed.